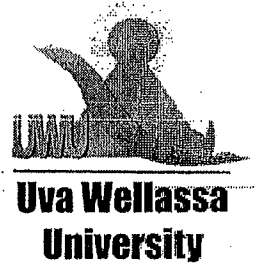


Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Computer Science and Technology
100 level 2nd Semester Examination –Dec. /Jan. 2017
CST122-2 Object Oriented Analysis and Design



Part C

Number of Questions: Two (02)

Mark Allocation: 50

1.

- a. Draw high level Class Diagram for the following system. (15 mark)

A university has one or more faculties and each faculty has one or more departments. Each department is managed by the Head of the Department, the most senior lecturer attached to the department. There are three (03) types of employees in university system, namely, academic staff, academic-support staff and non-academic staff. The salary schemes of academic, academic-support and non-academic staff are different. Two (02) types of students are being facilitated by the university; those are undergraduate and postgraduate students. Based on the delivery of lectures and conducting exams the undergraduate students are further classified into two (02) groups namely internal students and external students.

- b. Draw the Activity Diagram for the following vending machine. (10 mark)

A soft drink vending machine accepts coins for a variety of products. When the amount of money deposited into the machine is equal to or greater than the price of any of its available products, the respective product selection button will be enabled for the user to make the selection. After the user has made a valid selection, the machine will dispense the soft drink together with the change (if applicable).

2.

- a. Draw the State Diagram for the following telephone line. (15 mark)

At the start of a call, the telephone line is idle. When the phone is removed from the hook, it emits a dial tone and can accept the dialing of digits. Upon entry of a valid number, the phone system tries to connect the call and route it to the proper destination. The connection can fail if the number or trunk is busy. If the connection is successful the called phone begins ringing. If the called party answers the phone, a conversation can occur. When the called party hangs up the phone disconnects and rewards to idle when put on hook again.

- b. Consider the following scenario of customer withdrawing cash from an ATM. Draw the Collaboration Diagram to model this scenario. (10 mark)

When withdrawing money from an ATM, first the customer inserts the card into the ATM. Then the customer is prompted to enter the PIN. The PIN is validated by the bank and the ATM prompted the customer to enter the amount to withdraw. When the customer enters an amount to withdraw, the bank first checks the available balance and the corresponding amount is ejected to the customer. Then the new balance is displayed and the customer is asked whether he wants to continue with any other transactions. If not the card is ejected.